



Atty Docket No.: JHV-050.01

Inventor: Tzyy-Chouu Wu *et al.*

Application No.: 10/555,669-Conf. #9879

Filing Date: May 5, 2004

Title: ANTI-CANCER DNA VACCINE EMPLOYING PLASMIDS ENCODING SIGNAL  
SEQUENCE, MUTANT ONCO-PROTEIN ANTIGEN, AND HEAT SHOCK PROTEIN

**Documents Filed:**

Response to Notification of Missing Requirements (2 pages in dupl.)  
Copy of Notification of Missing Requirements (3 pages)  
Petition for Four Month Extension of Time Under 37 CFR 1.136(a) (1 page in dupl.)  
Paper copy of Sequence Listing (17 pages)  
CRF diskette of Sequence Listing (1 disk)  
Statement to Support Sequence Listing submission (1 page)  
Preliminary Amendment (3 pages)  
Executed Declaration (1 page)  
Executed Powers of Attorney (2 pages)  
Notification of Change of Attorney Docket Number (1 page)

Via: First Class Mail

Sender's Initials: JYA/dmn

RECEIVED

MAR 29 2007

PATENT DEPT.  
DOCKETING

IAP6 Rec'd PCT/PTO 22 MAR 2007

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Date: March 19, 2007

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Wu, Tzyy-Chou et al.

Application No: 10/555,669

International Filing Date: May 5, 2004

For: ANTI-CANCER DNA VACCINE  
EMPLOYING PLASMIDS ENCODING  
SIGNAL SEQUENCE, MUTANT ONCO-  
PROTEIN ANTIGEN, AND HEAT  
SHOCK PROTEIN

Art Unit: *To be Determined*

Confirmation No.: 9879

Examiner: *To be Determined*

Docket No. JHV-050.01

CERTIFICATE OF FIRST CLASS MAILING

I hereby certify that the foregoing documents are being deposited with the United States Postal Service as First Class Mail, in an envelope addressed to Mail Stop PCT (DO/EO/US), Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450, on this date of March 19, 2007.

  
John Barretto

**RESPONSE TO NOTIFICATION OF MISSING REQUIREMENTS**

Mail Stop PCT (DO/EO/US)  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This paper is being filed in response to the Notification of Missing Requirements Under 35 U.S.C. 371 in the United States Designated/Elected Office (DO/EO/US) mailed on September 19, 2006, in the above-referenced application.

Enclosed is a copy of the Notification of Missing Requirements Under 35 U.S.C. 371 in the United States Designated/Elected Office (DO/EO/US); a Petition for a Four-Month Extension of Time; a paper copy of the Sequence Listing; a Computer Readable Form of the Sequence Listing (CRF); a Statement to Support the Filing and Submission of the Sequence Listing in accordance with 37 CFR §§1.821-1.825; a Preliminary Amendment; Declaration signed by Inventors Wu and Hung; and Powers of Attorney signed by Inventors Wu and Hung.

Please charge the surcharge for a small entity (\$65.00) to our **Deposit Account No. 06-1448, Reference JHV-050.01**. A copy of this Response is enclosed.

Although we believe that we have submitted the correct amount to cover the above-listed items, the Commissioner is authorized to credit any overpayment or charge any deficiencies to our **Deposit Account No. 06-1448, Reference JHV-050.01.**

Respectfully Submitted,

Date: March 19, 2007

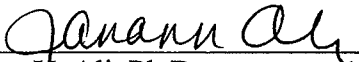
**Customer No: 25181**

Patent Group

Foley Hoag LLP

155 Seaport Blvd.

Boston, MA 02210-2600

  
\_\_\_\_\_  
Janann Y. Ali, Ph.D.  
Reg. No. 54,958  
Agent for Applicants  
Tel. (617) 832-1000  
Fax. (617) 832-7000

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Wu, Tzyy-Chou et al.

Application No: 10/555,669

International Filing Date: May 5, 2004

For: ANTI-CANCER DNA VACCINE  
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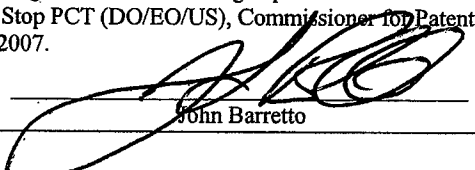
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Date: March 19, 2007

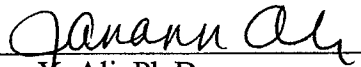
**Customer No: 25181**

Patent Group

Foley Hoag LLP

155 Seaport Blvd.

Boston, MA 02210-2600



Janann Y. Ali, Ph.D.

Reg. No. 54,958

Agent for Applicants

Tel. (617) 832-1000

Fax. (617) 832-7000



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
 United States Patent and Trademark Office  
 Address: COMMISSIONER FOR PATENTS  
 P.O. Box 1450  
 Alexandria, Virginia 22313-1450  
 www.uspto.gov

JHU-18

52L

mfr

U.S. APPLICATION NUMBER NO.	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
10/555,669	Tzyy-Chouu Wu	26148.1180

INTERNATIONAL APPLICATION NO.

PCT/US04/13756

I.A. FILING DATE

PRIORITY DATE

05/05/2004

05/05/2003

McKenna Long & Aldridge  
 1900 K Street NW  
 Washington, DC 20006

*Missing Requirement*  
**DUE:** *11/19/07-w/2 month*  
**FINAL:** *4/19/07*

CONFIRMATION NO. 9879

371 FORMALITIES LETTER



\*OC000000020495147\*

Date Mailed: 09/19/2006

### NOTIFICATION OF MISSING REQUIREMENTS UNDER 35 U.S.C. 371 IN THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)

The following items have been submitted by the applicant or the IB to the United States Patent and Trademark Office as a Designated / Elected Office (37 CFR 1.495).

- Indication of Small Entity Status
- Copy of the International Application filed on 11/07/2005
- Copy of the International Search Report filed on 11/07/2005
- Preliminary Amendments filed on 11/07/2005
- Information Disclosure Statements filed on 11/07/2005
- U.S. Basic National Fees filed on 11/07/2005
- Priority Documents filed on 11/07/2005

<b>RECEIVED</b>	
SEP 21 2006	
DOCKETED BY: <i>JM</i>	
DUE DATE: <i>11/19/06</i> / <b>FINAL: 4/19/07</b>	
ATTORNEY CONFIRMATION:	
McKENNA LONG & ALDRIDGE	

The applicant needs to satisfy supplemental fees problems indicated below.

The following items **MUST** be furnished within the period set forth below in order to complete the requirements for acceptance under 35 U.S.C. 371:

- Oath or declaration of the inventors, in compliance with 37 CFR 1.497(a) and (b), identifying the application by the International application number and international filing date.
- To avoid abandonment, a surcharge (for late submission of filing fee, search fee, examination fee or oath or declaration) as set forth in 37 CFR 1.492(h) of \$65 for a small entity in compliance with 37 CFR 1.27, must be submitted with the missing items identified in this letter.

#### SUMMARY OF FEES DUE:

Total additional fees required for this application is **\$65** for a Small Entity:

- **\$65** Surcharge.

- This application clearly fails to comply with the requirements of 37 CFR. 1.821-1.825. Applicant's attention is directed to the final rulemaking notice published at 55 FR 18230 (May 1, 1990), and 1114 OG 29 (May 15, 1990). If the effective filing date is on or after July 1, 1998, see the final rulemaking notice published at 63 FR 29620 (June 1, 1998) and 1211 OG 82 (June 23, 1998). If the effective filing date is on or after September 8, 2000, see the final rulemaking notice published in the Federal Register at 65 FR 54604 (September 8, 2000) and 1238 OG 145 (September 19, 2000). Applicant must provide an initial computer readable form (CRF) copy of the "Sequence Listing", an initial paper or compact disc copy of the "Sequence Listing", **as well as an amendment specifically directing its entry into the application.** Applicant must also provide a statement that the content of the sequence listing information recorded in computer readable form is identical to the written (on paper or compact disc) sequence listing and, where applicable, includes no new matter, as required by 37 CFR 1.821(e), 1.821(f), 1.821(g), 1.825(b), or 1.825(d). If applicant desires the sequence listing in the instant application to be identical with that of another application on file in the U.S. Patent and Trademark Office, such request in accordance with 37 CFR 1.821(e) may be submitted in lieu of a new CRF.
- A copy of the "Sequence Listing" in computer readable form has not been submitted as required by 37 CFR 1.821(e). If the effective filing date is on or after September 8, 2000, see the final rulemaking notice published in the Federal Register at 65 FR 54604 (September 8, 2000) and 1238 OG 145 (September 19, 2000). Applicant must provide an initial computer readable form (CRF) copy of the "Sequence Listing" and a statement that the content of the sequence listing information recorded in computer readable form is identical to the written (on paper or compact disc) sequence listing and, where applicable, includes no new matter, as required by 37 CFR 1.821(e), 1.821(f), 1.821(g), 1.825(b), or 1.825(d). If applicant desires the sequence listing in the instant application to be identical with that of another application on file in the U.S. Patent and Trademark Office, such request in accordance with 37 CFR 1.821(e) may be submitted in lieu of a new CRF.

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

**For questions regarding compliance to 37 CFR 1.821-1.825 requirements, please contact:**

- For Rules Interpretation, call (571) 272-0951
- For Patentin Software Program Help, call Patent EBC at 1-866-217-9197 or directly at 703-305-3028 / 703-308-6845 between the hours of 6 a.m. and 12 midnight, Monday through Friday, EST.
- Send e-mail correspondence for Patentin Software Program Help @ [ebc@uspto.gov](mailto:ebc@uspto.gov)

**ALL OF THE ITEMS SET FORTH ABOVE MUST BE SUBMITTED WITHIN TWO (2) MONTHS FROM THE DATE OF THIS NOTICE OR BY 32 MONTHS FROM THE PRIORITY DATE FOR THE APPLICATION, WHICHEVER IS LATER. FAILURE TO PROPERLY RESPOND WILL RESULT IN ABANDONMENT.**

The time period set above may be extended by filing a petition and fee for extension of time under the provisions of 37 CFR 1.136(a).

Applicant is reminded that any communications to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above (37 CFR 1.5)

*A copy of this notice **MUST** be returned with the response.*

JOHN L ANDERSON

Telephone: (703) 308-9140 EXT 211

**PART 1 - ATTORNEY/APPLICANT COPY**

U.S. APPLICATION NUMBER NO.	INTERNATIONAL APPLICATION NO.	ATTY. DOCKET NO.
10/555,669	PCT/US04/13756	26148.1180

FORM PCT/DO/EO/905 (371 Formalities Notice)

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

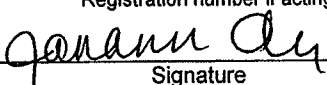
<b>PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a) FY 2006</b> (Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).)		Docket Number (Optional) JHV-050.01	
Application Number 10/555,669-Conf. #9879		Filed May 5, 2004	
For <b>ANTI-CANCER DNA VACCINE EMPLOYING PLASMIDS ENCODING SIGNAL SEQUENCE, MUTANT ONCO-PROTEIN ANTIGEN, AND HEAT SHOCK PROTEIN</b>			
Art Unit N/A		Examiner Not Yet Assigned	
This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above identified application. The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):			
		<u>Fee</u>	<u>Small Entity Fee</u>
<input type="checkbox"/>	One month (37 CFR 1.17(a)(1))	\$120	\$60
<input type="checkbox"/>	Two months (37 CFR 1.17(a)(2))	\$450	\$225
<input type="checkbox"/>	Three months (37 CFR 1.17(a)(3))	\$1020	\$510
<input checked="" type="checkbox"/>	Four months (37 CFR 1.17(a)(4))	\$1590	\$795
<input type="checkbox"/>	Five months (37 CFR 1.17(a)(5))	\$2160	\$1080
<input checked="" type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27.			
<input type="checkbox"/> A check in the amount of the fee is enclosed.			
<input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.			
<input type="checkbox"/> The Director has already been authorized to charge fees in this application to a Deposit Account.			
<input checked="" type="checkbox"/> The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number <u>06-1448,</u> <u>Ref: JHV-050.01</u> . I have enclosed a duplicate copy of this sheet.			
I am the <input type="checkbox"/> applicant/inventor.			
<input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).			
<input checked="" type="checkbox"/> attorney or agent of record. Registration Number <u>54,958</u>			
<input type="checkbox"/> attorney or agent under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____			
<u>Janann Ali</u> Signature		<u>March 19, 2007</u> Date	
<u>Janann Y. Ali</u> Typed or printed name		<u>(617) 832-1000</u> Telephone Number	
NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.			
<input checked="" type="checkbox"/> Total of <u>2</u> forms are submitted.			

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the U.S. Postal Service on the date shown below with sufficient postage as First Class Mail, in an envelope addressed to: Mail Stop PCT (DO/EO/US), Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Dated: March 19, 2007

Signature: [Signature] (John Barretto)

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

<b>PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a) FY 2006</b> (Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).)		Docket Number (Optional) JHV-050.01																									
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Art Unit      N/A		Examiner      Not Yet Assigned																									
<p>This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above identified application.</p> <p>The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 15%; text-align: center;">Fee</th> <th style="width: 15%; text-align: center;">Small Entity Fee</th> <th style="width: 30%;"></th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> One month (37 CFR 1.17(a)(1))</td> <td style="text-align: center;">\$120</td> <td style="text-align: center;">\$60</td> <td style="text-align: center;">\$ _____</td> </tr> <tr> <td><input type="checkbox"/> Two months (37 CFR 1.17(a)(2))</td> <td style="text-align: center;">\$450</td> <td style="text-align: center;">\$225</td> <td style="text-align: center;">\$ _____</td> </tr> <tr> <td><input type="checkbox"/> Three months (37 CFR 1.17(a)(3))</td> <td style="text-align: center;">\$1020</td> <td style="text-align: center;">\$510</td> <td style="text-align: center;">\$ _____</td> </tr> <tr> <td><input checked="" type="checkbox"/> Four months (37 CFR 1.17(a)(4))</td> <td style="text-align: center;">\$1590</td> <td style="text-align: center;">\$795</td> <td style="text-align: center;">\$ 795.00</td> </tr> <tr> <td><input type="checkbox"/> Five months (37 CFR 1.17(a)(5))</td> <td style="text-align: center;">\$2160</td> <td style="text-align: center;">\$1080</td> <td style="text-align: center;">\$ _____</td> </tr> </tbody> </table> <p><input checked="" type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27.</p> <p><input type="checkbox"/> A check in the amount of the fee is enclosed.</p> <p><input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.</p> <p><input type="checkbox"/> The Director has already been authorized to charge fees in this application to a Deposit Account.</p> <p><input checked="" type="checkbox"/> The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number <u>06-1448,</u> Ref: JHV-050.01 . I have enclosed a duplicate copy of this sheet.</p> <p>I am the <input type="checkbox"/> applicant/inventor.</p> <p><input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).</p> <p><input checked="" type="checkbox"/> attorney or agent of record. Registration Number <u>54,958</u></p> <p><input type="checkbox"/> attorney or agent under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____</p> <p style="text-align: center;">           _____          Signature       </p> <p style="text-align: center;">         _____          Janann Y. Ali          Typed or printed name       </p> <p style="text-align: right;">         _____          March 19, 2007          Date       </p> <p style="text-align: right;">         _____          (617) 832-1000          Telephone Number       </p> <p>NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.</p> <p><input checked="" type="checkbox"/> Total of <u>2</u> forms are submitted.</p>					Fee	Small Entity Fee		<input type="checkbox"/> One month (37 CFR 1.17(a)(1))	\$120	\$60	\$ _____	<input type="checkbox"/> Two months (37 CFR 1.17(a)(2))	\$450	\$225	\$ _____	<input type="checkbox"/> Three months (37 CFR 1.17(a)(3))	\$1020	\$510	\$ _____	<input checked="" type="checkbox"/> Four months (37 CFR 1.17(a)(4))	\$1590	\$795	\$ 795.00	<input type="checkbox"/> Five months (37 CFR 1.17(a)(5))	\$2160	\$1080	\$ _____
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Dated: March 19, 2007

Signature:  (John Barretto)

PC/MS-DOS PATENTIN 3.3  
WU, TZZY-CHOU et al.  
Appl. No.: 10/555,669  
Filed: 05-MAY-2004  
Data Rec: 15-FEB-2007  
Atty. Dkt. No: JHV-050.01  
(19546-5001)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Atty. Docket No: JHV-050.01 (19546-5001)

In re patent application of

WU, TZZY-CHOUU et al.

Serial No. 10/555,669

Filed: May 5, 2004

For: ANTI-CANCER DNA VACCINE EMPLOYING PLASMIDS ENCODING SIGNAL SEQUENCE,  
MUTANT ONCOPROTEIN ANTIGEN, AND HEAT SHOCK PROTEIN

STATEMENT TO SUPPORT FILING AND SUBMISSION IN  
ACCORDANCE WITH 37 C.F.R. §§ 1.821-1.825

Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
Mail Stop SEQUENCE

Sir:

In connection with a Sequence Listing submitted concurrently herewith, the undersigned hereby states that:

1. the submission, filed herewith in accordance with 37 C.F.R. § 1.821(g), does not include new matter;
2. the content of the attached paper copy and the attached computer readable copy of the Sequence Listing, submitted in accordance with 37 C.F.R. § 1.821(c) and (e), respectively, are the same.

Respectfully submitted,

Feb. 15, 2007  
Date

  
James A. Coburn

HARBOR CONSULTING IP SERVICES, INC.  
1500A Lafayette Road, #262  
Portsmouth, N.H. 03801  
800-318-3021

## SEQUENCE LISTING

<110> WU, TZZY-CHOOU  
HUNG, CHIEN, FU

<120> ANTI-CANCER DNA VACCINE EMPLOYING PLASMIDS ENCODING  
SIGNAL SEQUENCE, MUTANT ONCOPROTEIN ANTIGEN, AND HEAT  
SHOCK PROTEIN

<130> JHV-050.01 (19546-5001)

<140> 10/555,669

<141> 2004-05-05

<150> PCT/US04/013756

<151> 2004-05-05

<150> 60/467,602

<151> 2003-05-05

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35 40 45  
Arg Ala His Tyr Asn Ile Val Thr Phe Cys Cys Lys Cys Asp Ser Thr  
50 55 60  
Leu Arg Leu Cys Val Gln Ser Thr His Val Asp Ile Arg Thr Leu Glu  
65 70 75 80  
Asp Leu Leu Met Gly Thr Leu Gly Ile Val Cys Pro Ile Cys Ser Gln  
85 90 95

Asp Lys Leu

<210> 3  
<211> 98  
<212> PRT  
<213> Human papillomavirus

<400> 3  
Met His Gly Asp Thr Pro Thr Leu His Glu Tyr Met Leu Asp Leu Gln  
1 5 10 15  
Pro Glu Thr Thr Asp Leu Tyr Cys Tyr Glu Gln Leu Asn Asp Ser Ser  
20 25 30  
Glu Glu Glu Asp Glu Ile Asp Gly Pro Ala Gly Gln Ala Glu Pro Asp  
35 40 45  
Arg Ala His Tyr Asn Ile Val Thr Phe Cys Cys Lys Cys Asp Ser Thr  
50 55 60  
Leu Arg Leu Cys Val Gln Ser Thr His Val Asp Ile Arg Thr Leu Glu  
65 70 75 80  
Asp Leu Leu Met Gly Thr Leu Gly Ile Val Cys Pro Ile Cys Ser Gln  
85 90 95

Lys Pro

<210> 4  
 <211> 158  
 <212> PRT  
 <213> Human papillomavirus

<400> 4

Met His Gln Lys Arg Thr Ala Met Phe Gln Asp Pro Gln Glu Arg Pro  
 1 5 10 15

Arg Lys Leu Pro Gln Leu Cys Thr Glu Leu Gln Thr Thr Ile His Asp  
 20 25 30

Ile Ile Leu Glu Cys Val Tyr Cys Lys Gln Gln Leu Leu Arg Arg Glu  
 35 40 45

Val Tyr Asp Phe Ala Phe Arg Asp Leu Cys Ile Val Tyr Arg Asp Gly  
 50 55 60

Asn Pro Tyr Ala Val Cys Asp Lys Cys Leu Lys Phe Tyr Ser Lys Ile  
 65 70 75 80

Ser Glu Tyr Arg His Tyr Cys Tyr Ser Leu Tyr Gly Thr Thr Leu Glu  
 85 90 95

Gln Gln Tyr Asn Lys Pro Leu Cys Asp Leu Leu Ile Arg Cys Ile Asn  
 100 105 110

Cys Gln Lys Pro Leu Cys Pro Glu Glu Lys Gln Arg His Leu Asp Lys  
 115 120 125

Lys Gln Arg Phe His Asn Ile Arg Gly Arg Trp Thr Gly Arg Cys Met  
 130 135 140

Ser Cys Cys Arg Ser Ser Arg Thr Arg Arg Glu Thr Gln Leu  
 145 150 155

<210> 5  
 <211> 151  
 <212> PRT  
 <213> Human papillomavirus

<400> 5

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 1 5 10 15

Thr Glu Leu Gln Thr Thr Ile His Asp Ile Ile Leu Glu Cys Val Tyr  
 20 25 30

Cys Lys Gln Gln Leu Leu Arg Arg Glu Val Tyr Asp Phe Ala Phe Arg  
 35 40 45

Asp Leu Cys Ile Val Tyr Arg Asp Gly Asn Pro Tyr Ala Val Cys Asp  
 50 55 60

Lys Cys Leu Lys Phe Tyr Ser Lys Ile Ser Glu Tyr Arg His Tyr Cys  
65 70 75 80

Tyr Ser Leu Tyr Gly Thr Thr Leu Glu Gln Gln Tyr Asn Lys Pro Leu  
85 90 95

Cys Asp Leu Leu Ile Arg Cys Ile Asn Cys Gln Lys Pro Leu Cys Pro  
100 105 110

Glu Glu Lys Gln Arg His Leu Asp Lys Lys Gln Arg Phe His Asn Ile  
115 120 125

Arg Gly Arg Trp Thr Gly Arg Cys Met Ser Cys Cys Arg Ser Ser Arg  
130 135 140

Thr Arg Arg Glu Thr Gln Leu  
145 150

<210> 6

<211> 378

<212> DNA

<213> Human papillomavirus

<400> 6

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tatatgtag atttgaacc agagacaact gatctctact gttatgagca attaaatgac 180  
agctcagagg aggaggatga aatagatggt ccagctggac aagcagaacc ggacagagcc 240  
cattacaata ttgtaacctt ttgttgcaag tgtgactcta cgcttcgggt gtgcgtacaa 300  
agcacacacg tagacattcg tactttggaa gacctgttaa tgggcacact aggaattgtg 360  
tgcccatct gttctcaa 378

<210> 7

<211> 127

<212> PRT

<213> Human papillomavirus

<400> 7

Met Ala Ala Pro Gly Ala Arg Arg Pro Leu Leu Leu Leu Leu Ala  
1 5 10 15

Gly Leu Ala His Gly Ala Ser Ala Leu Phe Glu Asp Leu Ile Met His  
20 25 30

Gly Asp Thr Pro Thr Leu His Glu Tyr Met Leu Asp Leu Gln Pro Glu  
35 40 45

Thr Thr Asp Leu Tyr Cys Tyr Glu Gln Leu Asn Asp Ser Ser Glu Glu  
50 55 60

Glu Asp Glu Ile Asp Gly Pro Ala Gly Gln Ala Glu Pro Asp Arg Ala  
65 70 75 80

His Tyr Asn Ile Val Thr Phe Cys Cys Lys Cys Asp Ser Thr Leu Arg  
85 90 95

Leu Cys Val Gln Ser Thr His Val Asp Ile Arg Thr Leu Glu Asp Leu  
 100 105 110

Leu Met Gly Thr Leu Gly Ile Val Cys Pro Ile Cys Ser Gln Pro  
 115 120 125

<210> 8  
 <211> 90  
 <212> DNA  
 <213> Human papillomavirus

<400> 8  
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 ggcgccctcag cactctttga ggatctaatac 90

<210> 9  
 <211> 1878  
 <212> DNA  
 <213> Mycobacterium tuberculosis

<400> 9  
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 ggtggcgacc cggtcgtcgt cgccaactcc gagggctcca ggaccacccc gtcaattgtc 120  
 gcgttcgccc gcaacgggtga ggtgctggtc ggccagcccc ccaagaacca ggcatgacc 180  
 aacgtcgtac gcaccgtgcg ctcggtcaag cgacacatgg gcagcgactg gtccatagag 240  
 attgacggca agaaatacac gcgcgcggag atcagcgccc gcattctgat gaagctgaag 300  
 cgcgacgccc aggcctacct cggtagggac attaccgacg cggttatcac gacgcccgcc 360  
 tacttcaatg acgcccagcg tcaggccacc aaggacgccc gccagatcgc cggcctcaac 420  
 gtgctcgcca tcgtcaacga gcgcaccgcg gccgcgctgg cctacggcct cgacaagggc 480  
 gagaaggagc agcgaatcct ggtcttcgac ttgggtgggtg gcactttcga cgtttccctg 540  
 ctggagatcg gcgagggtgt ggttgaggtc cgtgccactt cgggtgacaa ccacctcggc 600  
 ggcgacgact gggaccagcg ggtcgtcgat tggctgggtg acaagttcaa gggcaccagc 660  
 ggcatcgatc tgaccaagga caagatggcg atgcagcggc tgcgggaagc cgccgagaag 720  
 gcaaagatcg agctgagttc gagtcagtc acctcgatca acctgcccta catcacgtc 780  
 gacgccgaca agaaccggtt gttcttagac gagcagctga cccgcgcgga gttccaacgg 840  
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 ggcatttcgg tgctcgagat cgatcacgtt gtgctcgtgg gtggttcgac ccggatgcc 960  
 gcggtgaccg atctgggtcaa ggaactcacc ggccgcaagg aacccaacaa gggcgtcaac 1020  
 cccgatgagg ttgtcgcggt gggagccgct ctgcaggccg gcgtcctcaa gggcgagggtg 1080  
 aaagacgttc tgctgcttga tgttaccgcc ctgagcctgg gtatcgagac caaggcgagg 1140  
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 accaccgccc acgacaacca accgtcgggtg cagatccagg tctatcaggg ggagcgtgag 1260  
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 gagaagttcg tcaaagaaca gcgtgaggcc gaggggtggt cgaaggtacc tgaagacacg 1620  
 ctgaacaagg ttgatgccgc ggtggcggaa gcgaaggcgg cacttgccgg atcgatatt 1680  
 tcggccatca agtcggcgat ggagaagctg ggcaggagt cgcaggctct ggggcaagcg 1740  
 atctacgaag cagctcaggc tgcgtcacag gccactggcg ctgcccaccc cggcgccgag 1800  
 ccggcggtg cccaccccg ctcggtgat gacgttgtgg acgcgagggt ggtcgacgac 1860  
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&lt;210&gt; 10

&lt;211&gt; 625

&lt;212&gt; PRT

&lt;213&gt; Mycobacterium tuberculosis

&lt;400&gt; 10

Met Ala Arg Ala Val Gly Ile Asp Leu Gly Thr Thr Asn Ser Val Val  
 1 5 10 15

Ser Val Leu Glu Gly Gly Asp Pro Val Val Val Ala Asn Ser Glu Gly  
 20 25 30

Ser Arg Thr Thr Pro Ser Ile Val Ala Phe Ala Arg Asn Gly Glu Val  
 35 40 45

Leu Val Gly Gln Pro Ala Lys Asn Gln Ala Val Thr Asn Val Asp Arg  
 50 55 60

Thr Val Arg Ser Val Lys Arg His Met Gly Ser Asp Trp Ser Ile Glu  
 65 70 75 80

Ile Asp Gly Lys Lys Tyr Thr Ala Pro Glu Ile Ser Ala Arg Ile Leu  
 85 90 95

Met Lys Leu Lys Arg Asp Ala Glu Ala Tyr Leu Gly Glu Asp Ile Thr  
 100 105 110

Asp Ala Val Ile Thr Thr Pro Ala Tyr Phe Asn Asp Ala Gln Arg Gln  
 115 120 125

Ala Thr Lys Asp Ala Gly Gln Ile Ala Gly Leu Asn Val Leu Arg Ile  
 130 135 140

Val Asn Glu Pro Thr Ala Ala Ala Leu Ala Tyr Gly Leu Asp Lys Gly  
 145 150 155 160

Glu Lys Glu Gln Arg Ile Leu Val Phe Asp Leu Gly Gly Gly Thr Phe  
 165 170 175

Asp Val Ser Leu Leu Glu Ile Gly Glu Gly Val Val Glu Val Arg Ala  
 180 185 190

Thr Ser Gly Asp Asn His Leu Gly Gly Asp Asp Trp Asp Gln Arg Val  
 195 200 205

Val Asp Trp Leu Val Asp Lys Phe Lys Gly Thr Ser Gly Ile Asp Leu  
 210 215 220

Thr Lys Asp Lys Met Ala Met Gln Arg Leu Arg Glu Ala Ala Glu Lys  
 225 230 235 240

Ala Lys Ile Glu Leu Ser Ser Ser Gln Ser Thr Ser Ile Asn Leu Pro  
 245 250 255

Tyr Ile Thr Val Asp Ala Asp Lys Asn Pro Leu Phe Leu Asp Glu Gln  
 260 265 270

Leu Thr Arg Ala Glu Phe Gln Arg Ile Thr Gln Asp Leu Leu Asp Arg  
 275 280 285  
 Thr Arg Lys Pro Phe Gln Ser Val Ile Ala Asp Thr Gly Ile Ser Val  
 290 295 300  
 Ser Glu Ile Asp His Val Val Leu Val Gly Gly Ser Thr Arg Met Pro  
 305 310 315 320  
 Ala Val Thr Asp Leu Val Lys Glu Leu Thr Gly Gly Lys Glu Pro Asn  
 325 330 335  
 Lys Gly Val Asn Pro Asp Glu Val Val Ala Val Gly Ala Ala Leu Gln  
 340 345 350  
 Ala Gly Val Leu Lys Gly Glu Val Lys Asp Val Leu Leu Leu Asp Val  
 355 360 365  
 Thr Pro Leu Ser Leu Gly Ile Glu Thr Lys Gly Gly Val Met Thr Arg  
 370 375 380  
 Leu Ile Glu Arg Asn Thr Thr Ile Pro Thr Lys Arg Ser Glu Thr Phe  
 385 390 395 400  
 Thr Thr Ala Asp Asp Asn Gln Pro Ser Val Gln Ile Gln Val Tyr Gln  
 405 410 415  
 Gly Glu Arg Glu Ile Ala Ala His Asn Lys Leu Leu Gly Ser Phe Glu  
 420 425 430  
 Leu Thr Gly Ile Pro Pro Ala Pro Arg Gly Ile Pro Gln Ile Glu Val  
 435 440 445  
 Thr Phe Asp Ile Asp Ala Asn Gly Ile Val His Val Thr Ala Lys Asp  
 450 455 460  
 Lys Gly Thr Gly Lys Glu Asn Thr Ile Arg Ile Gln Glu Gly Ser Gly  
 465 470 475 480  
 Leu Ser Lys Glu Asp Ile Asp Arg Met Ile Lys Asp Ala Glu Ala His  
 485 490 495  
 Ala Glu Glu Asp Arg Lys Arg Arg Glu Glu Ala Asp Val Arg Asn Gln  
 500 505 510  
 Ala Glu Thr Leu Val Tyr Gln Thr Glu Lys Phe Val Lys Glu Gln Arg  
 515 520 525  
 Glu Ala Glu Gly Gly Ser Lys Val Pro Glu Asp Thr Leu Asn Lys Val  
 530 535 540  
 Asp Ala Ala Val Ala Glu Ala Lys Ala Ala Leu Gly Gly Ser Asp Ile  
 545 550 555 560  
 Ser Ala Ile Lys Ser Ala Met Glu Lys Leu Gly Gln Glu Ser Gln Ala  
 565 570 575

Leu Gly Gln Ala Ile Tyr Glu Ala Ala Gln Ala Ala Ser Gln Ala Thr  
                   580                                  585                                  590

Gly Ala Ala His Pro Gly Gly Glu Pro Gly Gly Ala His Pro Gly Ser  
                   595                                  600                                  605

Ala Asp Asp Val Val Asp Ala Glu Val Val Asp Asp Gly Arg Glu Ala  
                   610                                  615                                  620

Lys  
 625

<210> 11  
 <211> 2104  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <221> CDS  
 <222> (1)..(2103)

<220>  
 <223> Description of Artificial Sequence: Synthetic  
                   construct

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 cca gag aca act gat ctc tac tgt tat gag caa tta aat gac agc tca 96  
 Pro Glu Thr Thr Asp Leu Tyr Cys Tyr Glu Gln Leu Asn Asp Ser Ser  
                                   20                                  25                                  30  
  
 gag gag gag gat gaa ata gat ggt cca gct gga caa gca gaa ccg gac 144  
 Glu Glu Glu Asp Glu Ile Asp Gly Pro Ala Gly Gln Ala Glu Pro Asp  
                                   35                                  40                                  45  
  
 aga gcc cat tac aat att gta acc ttt tgt tgc aag tgt gac tct acg 192  
 Arg Ala His Tyr Asn Ile Val Thr Phe Cys Cys Lys Cys Asp Ser Thr  
                   50                                  55                                  60  
  
 ctt cgg ttg tgc gta caa agc aca cac gta gac att cgt act ttg gaa 240  
 Leu Arg Leu Cys Val Gln Ser Thr His Val Asp Ile Arg Thr Leu Glu  
   65                                  70                                  75                                  80  
  
 gac ctg tta atg ggc aca cta gga att gtg tgc ccc atc tgt tct caa 288  
 Asp Leu Leu Met Gly Thr Leu Gly Ile Val Cys Pro Ile Cys Ser Gln  
                                   85                                  90                                  95  
  
 gga tcc atg gct cgt gcg gtc ggg atc gac ctc ggg acc acc aac tcc 336  
 Gly Ser Met Ala Arg Ala Val Gly Ile Asp Leu Gly Thr Thr Asn Ser  
                   100                                  105                                  110  
  
 gtc gtc tcg gtt ctg gaa ggt ggc gac ccg gtc gtc gtc gcc aac tcc 384  
 Val Val Ser Val Leu Glu Gly Gly Asp Pro Val Val Val Ala Asn Ser  
                   115                                  120                                  125

gag ggc tcc agg acc acc ccg tca att gtc gcg ttc gcc cgc aac ggt	432
Glu Gly Ser Arg Thr Thr Pro Ser Ile Val Ala Phe Ala Arg Asn Gly	
130 135 140	
gag gtg ctg gtc ggc cag ccc gcc aag aac cag gca gtg acc aac gtc	480
Glu Val Leu Val Gly Gln Pro Ala Lys Asn Gln Ala Val Thr Asn Val	
145 150 155 160	
gat cgc acc gtg cgc tcg gtc aag cga cac atg ggc agc gac tgg tcc	528
Asp Arg Thr Val Arg Ser Val Lys Arg His Met Gly Ser Asp Trp Ser	
165 170 175	
ata gag att gac ggc aag aaa tac acc gcg ccg gag atc agc gcc cgc	576
Ile Glu Ile Asp Gly Lys Lys Tyr Thr Ala Pro Glu Ile Ser Ala Arg	
180 185 190	
att ctg atg aag ctg aag cgc gac gcc gag gcc tac ctc ggt gag gac	624
Ile Leu Met Lys Leu Lys Arg Asp Ala Glu Ala Tyr Leu Gly Glu Asp	
195 200 205	
att acc gac gcg gtt atc acg acg ccc gcc tac ttc aat gac gcc cag	672
Ile Thr Asp Ala Val Ile Thr Thr Pro Ala Tyr Phe Asn Asp Ala Gln	
210 215 220	
cgt cag gcc acc aag gac gcc ggc cag atc gcc ggc ctc aac gtg ctg	720
Arg Gln Ala Thr Lys Asp Ala Gly Gln Ile Ala Gly Leu Asn Val Leu	
225 230 235 240	
cgg atc gtc aac gag ccg acc gcg gcc gcg ctg gcc tac ggc ctc gac	768
Arg Ile Val Asn Glu Pro Thr Ala Ala Ala Leu Ala Tyr Gly Leu Asp	
245 250 255	
aag ggc gag aag gag cag cga atc ctg gtc ttc gac ttg ggt ggt ggc	816
Lys Gly Glu Lys Glu Gln Arg Ile Leu Val Phe Asp Leu Gly Gly Gly	
260 265 270	
act ttc gac gtt tcc ctg ctg gag atc ggc gag ggt gtg gtt gag gtc	864
Thr Phe Asp Val Ser Leu Leu Glu Ile Gly Glu Gly Val Val Glu Val	
275 280 285	
cgt gcc act tcg ggt gac aac cac ctc ggc ggc gac gac tgg gac cag	912
Arg Ala Thr Ser Gly Asp Asn His Leu Gly Gly Asp Asp Trp Asp Gln	
290 295 300	
cgg gtc gtc gat tgg ctg gtg gac aag ttc aag ggc acc agc ggc atc	960
Arg Val Val Asp Trp Leu Val Asp Lys Phe Lys Gly Thr Ser Gly Ile	
305 310 315 320	
gat ctg acc aag gac aag atg gcg atg cag cgg ctg cgg gaa gcc gcc	1008
Asp Leu Thr Lys Asp Lys Met Ala Met Gln Arg Leu Arg Glu Ala Ala	
325 330 335	
gag aag gca aag atc gag ctg agt tcg agt cag tcc acc tcg atc aac	1056
Glu Lys Ala Lys Ile Glu Leu Ser Ser Ser Gln Ser Thr Ser Ile Asn	
340 345 350	

ctg ccc tac atc acc gtc gac gcc gac aag aac ccg ttg ttc tta gac	1104
Leu Pro Tyr Ile Thr Val Asp Ala Asp Lys Asn Pro Leu Phe Leu Asp	
355 360 365	
gag cag ctg acc cgc gcg gag ttc caa cgg atc act cag gac ctg ctg	1152
Glu Gln Leu Thr Arg Ala Glu Phe Gln Arg Ile Thr Gln Asp Leu Leu	
370 375 380	
gac cgc act cgc aag ccg ttc cag tcg gtg atc gct gac acc ggc att	1200
Asp Arg Thr Arg Lys Pro Phe Gln Ser Val Ile Ala Asp Thr Gly Ile	
385 390 395 400	
tcg gtg tcg gag atc gat cac gtt gtg ctc gtg ggt ggt tcg acc cgg	1248
Ser Val Ser Glu Ile Asp His Val Val Leu Val Gly Gly Ser Thr Arg	
405 410 415	
atg ccc gcg gtg acc gat ctg gtc aag gaa ctc acc ggc ggc aag gaa	1296
Met Pro Ala Val Thr Asp Leu Val Lys Glu Leu Thr Gly Gly Lys Glu	
420 425 430	
ccc aac aag ggc gtc aac ccc gat gag gtt gtc gcg gtg gga gcc gct	1344
Pro Asn Lys Gly Val Asn Pro Asp Glu Val Val Ala Val Gly Ala Ala	
435 440 445	
ctg cag gcc ggc gtc ctc aag ggc gag gtg aaa gac gtt ctg ctg ctt	1392
Leu Gln Ala Gly Val Leu Lys Gly Glu Val Lys Asp Val Leu Leu Leu	
450 455 460	
gat gtt acc ccg ctg agc ctg ggt atc gag acc aag ggc ggc gtg atg	1440
Asp Val Thr Pro Leu Ser Leu Gly Ile Glu Thr Lys Gly Gly Val Met	
465 470 475 480	
acc agg ctc atc gag cgc aac acc acg atc ccc acc aag cgg tcg gag	1488
Thr Arg Leu Ile Glu Arg Asn Thr Thr Ile Pro Thr Lys Arg Ser Glu	
485 490 495	
act ttc acc acc gcc gac gac aac caa ccg tcg gtg cag atc cag gtc	1536
Thr Phe Thr Thr Ala Asp Asp Asn Gln Pro Ser Val Gln Ile Gln Val	
500 505 510	
tat cag ggg gag cgt gag atc gcc gcg cac aac aag ttg ctc ggg tcc	1584
Tyr Gln Gly Glu Arg Glu Ile Ala Ala His Asn Lys Leu Leu Gly Ser	
515 520 525	
ttc gag ctg acc ggc atc ccg ccg gcg ccg cgg ggg att ccg cag atc	1632
Phe Glu Leu Thr Gly Ile Pro Pro Ala Pro Arg Gly Ile Pro Gln Ile	
530 535 540	
gag gtc act ttc gac atc gac gcc aac ggc att gtg cac gtc acc gcc	1680
Glu Val Thr Phe Asp Ile Asp Ala Asn Gly Ile Val His Val Thr Ala	
545 550 555 560	
aag gac aag ggc acc ggc aag gag aac acg atc cga atc cag gaa ggc	1728
Lys Asp Lys Gly Thr Gly Lys Glu Asn Thr Ile Arg Ile Gln Glu Gly	
565 570 575	



Asp Leu Leu Met Gly Thr Leu Gly Ile Val Cys Pro Ile Cys Ser Gln  
                     85                    90                    95

Gly Ser Met Ala Arg Ala Val Gly Ile Asp Leu Gly Thr Thr Asn Ser  
                     100                    105                    110

Val Val Ser Val Leu Glu Gly Gly Asp Pro Val Val Val Ala Asn Ser  
                     115                    120                    125

Glu Gly Ser Arg Thr Thr Pro Ser Ile Val Ala Phe Ala Arg Asn Gly  
                     130                    135                    140

Glu Val Leu Val Gly Gln Pro Ala Lys Asn Gln Ala Val Thr Asn Val  
                     145                    150                    155                    160

Asp Arg Thr Val Arg Ser Val Lys Arg His Met Gly Ser Asp Trp Ser  
                     165                    170                    175

Ile Glu Ile Asp Gly Lys Lys Tyr Thr Ala Pro Glu Ile Ser Ala Arg  
                     180                    185                    190

Ile Leu Met Lys Leu Lys Arg Asp Ala Glu Ala Tyr Leu Gly Glu Asp  
                     195                    200                    205

Ile Thr Asp Ala Val Ile Thr Thr Pro Ala Tyr Phe Asn Asp Ala Gln  
                     210                    215                    220

Arg Gln Ala Thr Lys Asp Ala Gly Gln Ile Ala Gly Leu Asn Val Leu  
                     225                    230                    235                    240

Arg Ile Val Asn Glu Pro Thr Ala Ala Ala Leu Ala Tyr Gly Leu Asp  
                     245                    250                    255

Lys Gly Glu Lys Glu Gln Arg Ile Leu Val Phe Asp Leu Gly Gly Gly  
                     260                    265                    270

Thr Phe Asp Val Ser Leu Leu Glu Ile Gly Glu Gly Val Val Glu Val  
                     275                    280                    285

Arg Ala Thr Ser Gly Asp Asn His Leu Gly Gly Asp Asp Trp Asp Gln  
                     290                    295                    300

Arg Val Val Asp Trp Leu Val Asp Lys Phe Lys Gly Thr Ser Gly Ile  
                     305                    310                    315                    320

Asp Leu Thr Lys Asp Lys Met Ala Met Gln Arg Leu Arg Glu Ala Ala  
                     325                    330                    335

Glu Lys Ala Lys Ile Glu Leu Ser Ser Ser Gln Ser Thr Ser Ile Asn  
                     340                    345                    350

Leu Pro Tyr Ile Thr Val Asp Ala Asp Lys Asn Pro Leu Phe Leu Asp  
                     355                    360                    365

Glu Gln Leu Thr Arg Ala Glu Phe Gln Arg Ile Thr Gln Asp Leu Leu  
                     370                    375                    380

Asp Arg Thr Arg Lys Pro Phe Gln Ser Val Ile Ala Asp Thr Gly Ile  
 385 390 395 400  
 Ser Val Ser Glu Ile Asp His Val Val Leu Val Gly Gly Ser Thr Arg  
 405 410 415  
 Met Pro Ala Val Thr Asp Leu Val Lys Glu Leu Thr Gly Gly Lys Glu  
 420 425 430  
 Pro Asn Lys Gly Val Asn Pro Asp Glu Val Val Ala Val Gly Ala Ala  
 435 440 445  
 Leu Gln Ala Gly Val Leu Lys Gly Glu Val Lys Asp Val Leu Leu Leu  
 450 455 460  
 Asp Val Thr Pro Leu Ser Leu Gly Ile Glu Thr Lys Gly Gly Val Met  
 465 470 475 480  
 Thr Arg Leu Ile Glu Arg Asn Thr Thr Ile Pro Thr Lys Arg Ser Glu  
 485 490 495  
 Thr Phe Thr Thr Ala Asp Asp Asn Gln Pro Ser Val Gln Ile Gln Val  
 500 505 510  
 Tyr Gln Gly Glu Arg Glu Ile Ala Ala His Asn Lys Leu Leu Gly Ser  
 515 520 525  
 Phe Glu Leu Thr Gly Ile Pro Pro Ala Pro Arg Gly Ile Pro Gln Ile  
 530 535 540  
 Glu Val Thr Phe Asp Ile Asp Ala Asn Gly Ile Val His Val Thr Ala  
 545 550 555 560  
 Lys Asp Lys Gly Thr Gly Lys Glu Asn Thr Ile Arg Ile Gln Glu Gly  
 565 570 575  
 Ser Gly Leu Ser Lys Glu Asp Ile Asp Arg Met Ile Lys Asp Ala Glu  
 580 585 590  
 Ala His Ala Glu Glu Asp Arg Lys Arg Arg Glu Glu Ala Asp Val Arg  
 595 600 605  
 Asn Gln Ala Glu Thr Leu Val Tyr Gln Thr Glu Lys Phe Val Lys Glu  
 610 615 620  
 Gln Arg Glu Ala Glu Gly Gly Ser Lys Val Pro Glu Asp Thr Leu Asn  
 625 630 635 640  
 Lys Val Asp Ala Ala Val Ala Glu Ala Lys Ala Ala Leu Gly Gly Ser  
 645 650 655  
 Asp Ile Ser Ala Ile Lys Ser Ala Met Glu Lys Leu Gly Gln Glu Ser  
 660 665 670  
 Gln Ala Leu Gly Gln Ala Ile Tyr Glu Ala Ala Gln Ala Ala Ser Gln  
 675 680 685

Ala Thr Gly Ala Ala His Pro Gly Ser Ala Asp Glu Ser  
690 695 700

<210> 13

<211> 6681

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
vector

<400> 13

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ttctcatagc tcacgctgta ggtatctcag ttcgggtgtag gtcgttcgct ccaagctggg 240
ctgtgtgcac gaaccccccg ttcagcccga ccgctgcgcc ttatccggta actatcgtct 300
tgagtccaac ccggttaagac acgacttacc gccactggca gcagccactg gtaacaggat 360
tagcagagcg aggtatgtag gcggtgtcac agagttcctg aagtgggtggc ctaactacgg 420
ctacactaga agaacagtat ttggtatctg cgctctgctg aagccagtta ccttcggaaa 480
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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: Wu, Tzyy-Chouu *et al.*

Application No: 10/555,669

International Filing Date: May 5, 2004

For: ANTI-CANCER DNA VACCINE  
EMPLOYING PLASMIDS ENCODING  
SIGNAL SEQUENCE, MUTANT ONCO-  
PROTEIN ANTIGEN, AND HEAT  
SHOCK PROTEIN

Art Unit: *To be Determined*

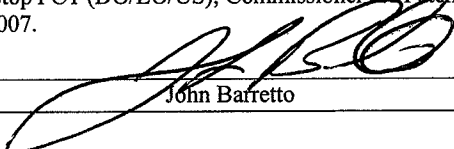
Confirmation No.: 9879

Examiner: *To be Determined*

Docket No. JHV-050.01

**CERTIFICATE OF FIRST CLASS MAILING**

I hereby certify that the foregoing documents are being deposited with the United States Postal Service as First Class Mail, in an envelope addressed to Mail Stop PCT (DO/EO/US), Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450, on this date of March 19, 2007.

  
John Barretto

**PRELIMINARY AMENDMENT**

Mail Stop PCT (DO/EO/US)  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir/Madam:

Prior to substantive examination of the above-referenced patent application, please amend the application as follows:

**Amendments to the specification** begin on page 2 of this paper.

**Remarks** begin on page 3 of this paper.

**AMENDMENTS TO THE SPECIFICATION**

Please replace the paragraph beginning on page 8, line 13 with the following amended paragraph:

**Figure 5A** is a schematic diagram of the pNGVL4a-Sig/E7 (detox) /HSP70 plasmid vector used for anti-tumor vaccination. ~~Indicated are various inserts and p~~ Fig. 5B discloses SEQ ID NOs: 17-20, respectively, in order of appearance.

Please replace the paragraph beginning on page 34, line 6 with the following amended paragraph:

A portion of SEQ ID NO: 13 ~~above vector showing by annotation~~annotated with the Sig, E7 (detox) and HSP-70 regions is shown below (nucleotides 3951-6350 of SEQ ID NO: 13). The vector sequence is in lower case; the signal peptide (Sig) is bold italic and annotated over the lines. The E7 (detox) sequence is upper case underscored (and annotated over the lines). The HSP70 sequence is italicized and underscored~~[[.]]~~ (not bolded) and is also annotated over the lines.

**REMARKS**

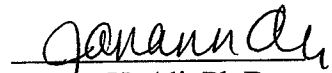
The foregoing amendments have been made to correct typographical errors and to insert the required SEQ ID NO identifiers associated with various listed sequences. No new matter has been added.

**CONCLUSION**

Applicants respectfully request entry of the present Preliminary Amendment. Early and favorable consideration of the application is respectfully solicited. The Examiner may address any questions raised by this submission to the undersigned at (617) 832-1000. The Commissioner is hereby authorized to charge any necessary fees to our **Deposit Order Account No. 06-1448, reference JHV-050.01.**

Respectfully submitted,  
FOLEY HOAG

Dated: March 19, 2007  
**Customer Number 25181**  
Patent Group  
Foley Hoag LLP  
155 Seaport Blvd.  
Boston, MA 02210-2600  
Tel: (617) 832-1000  
FAX: (617) 832-7000

  
Janann Y. Ali, Ph.D.  
Reg. No. 54,958  
Agent for Applicant

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN  
APPLICATION DATA SHEET (37 CFR 1.76)**

<b>Title of Invention</b>	ANTI-CANCER DNA VACCINE EMPLOYING PLASMIDS ENCODING SIGNAL SEQUENCE, MUTANT ONCOPROTEIN ANTIGEN, AND HEAT SHOCK PROTEIN
---------------------------	---

As the below named inventor(s), I/we declare that:

This declaration is directed to:

☐ The attached application, or  
☒ Application No. PCT/US04/13756, filed on 05/05/2004,  
☒ as amended on 11/07/2005 (if applicable);

I/we believe that I/we am/are the original and first inventor(s) of the subject matter which is claimed and for which a patent is sought;

I/we have reviewed and understand the contents of the above-identified application, including the claims, as amended by any amendment specifically referred to above;

I/we acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me/us to be material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

**WARNING:**

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

All statements made herein of my/our own knowledge are true, all statements made herein on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, and may jeopardize the validity of the application or any patent issuing thereon.

**FULL NAME OF INVENTOR(S)**

Inventor one: Tzyy-Choou Wu

Signature:  Citizen of: U.S.A.

Inventor two: Chien-Fu Hung

Signature:  Citizen of: Taiwan

Inventor three: \_\_\_\_\_

Signature: \_\_\_\_\_ Citizen of: \_\_\_\_\_

Inventor four: \_\_\_\_\_

Signature: \_\_\_\_\_ Citizen of: \_\_\_\_\_

☐ Additional inventors or a legal representative are being named on \_\_\_\_\_ additional form(s) attached hereto.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

<b>POWER OF ATTORNEY and CORRESPONDENCE ADDRESS INDICATION FORM</b>	<b>Application Number</b> 10/555,669-Conf. #9879	
	<b>Filing Date</b> May 5, 2004	
	<b>First Named Inventor</b> Tzyy-Choo Wu	
	<b>Title</b> ANTI-CANCER DNA VACCINE EMPLOYING PLASMIDS ENCODING SIGNAL SEQUENCE, MUTANT ONCO-PROTEIN ANTIGEN, AND HEAT SHOCK PROTEIN	
	<b>Art Unit</b> N/A	
	<b>Examiner Name</b> Not Yet Assigned	
<b>Attorney Docket No.</b> JHV-050.01		

I hereby revoke all previous powers of attorney given in the above-identified application.

I hereby appoint:

☒ Practitioners associated with the Customer Number: 25181

OR

☐ Practitioner(s) named below:

Name	Registration Number	Name	Registration Number

as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith.

Please recognize or change the correspondence address for the above-identified application to:

☒ The address associated with the above-mentioned Customer Number:

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name:

Address:

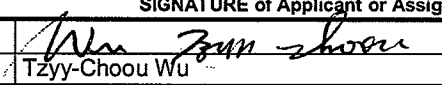
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Country	Telephone	Email	

I am the:

☒ Applicant/Inventor.

☐ Assignee of record of the entire interest. See 37 CFR 3.71.  
Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)

**SIGNATURE of Applicant or Assignee of Record**

Signature		Date	2-21-07
Name	Tzyy-Choo Wu	Telephone	410-614-3899
Title and Company	Inventor		

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below\*.

☒ \*Total of 2 forms are submitted.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

<b>POWER OF ATTORNEY and CORRESPONDENCE ADDRESS INDICATION FORM</b>	<b>Application Number</b>		10/555,669-Conf. #9879
	<b>Filing Date</b>		May 5, 2004
	<b>First Named Inventor</b>		Tzyy-Choo Wu
	<b>Title</b>	ANTI-CANCER DNA VACCINE EMPLOYING PLASMIDS ENCODING SIGNAL SEQUENCE, MUTANT ONCO-PROTEIN ANTIGEN, AND HEAT SHOCK PROTEIN	
	<b>Art Unit</b>		N/A
	<b>Examiner Name</b>		Not Yet Assigned
<b>Attorney Docket No.</b>		JHV-050.01	

I hereby revoke all previous powers of attorney given in the above-identified application.

I hereby appoint:

☒ Practitioners associated with the Customer Number: 25181

OR

☐ Practitioner(s) named below:

Name	Registration Number	Name	Registration Number

as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith.

Please recognize or change the correspondence address for the above-identified application to:

☒ The address associated with the above-mentioned Customer Number:

OR

☐ The address associated with Customer Number: 

OR

☐ Firm or Individual Name

Address

City

State

Zip

Country

Telephone

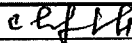
Email

I am the:

☒ Applicant/Inventor.

☐ Assignee of record of the entire interest. See 37 CFR 3.71.  
Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)

SIGNATURE of Applicant or Assignee of Record

Signature		Date	2/21/07
Name	Chien-Fu Hung	Telephone	410-502-8215
Title and Company Inventor			

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below\*.

☒ \*Total of 2 forms are submitted.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Wu, Tzyy-Choou *et al.*

Application No: 10/555,669

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For: ANTI-CANCER DNA VACCINE  
EMPLOYING PLASMIDS ENCODING  
SIGNAL SEQUENCE, MUTANT ONCO-  
PROTEIN ANTIGEN, AND HEAT  
SHOCK PROTEIN

Art Unit: *To be Determined*

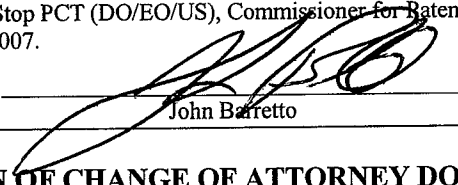
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Examiner: *To be Determined*

Docket No. JHV-050.01

CERTIFICATE OF FIRST CLASS MAILING

I hereby certify that the foregoing documents are being deposited with the United States Postal Service as First Class Mail, in an envelope addressed to Mail Stop PCT (DO/EO/US), Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450, on this date of March 19, 2007.

  
John Barretto

**NOTIFICATION OF CHANGE OF ATTORNEY DOCKET NUMBER**

Mail Stop PCT (DO/EO/US)  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

The Attorney Docket Number of the above-identified patent application has changed. Please take notice that the *correct* Attorney Docket Number for this application should now be as follows:

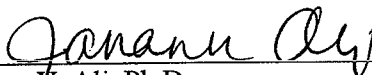
**JHV-050.01**

Please reference **JHV-050.01** on all future correspondence to the attorney of record.

Respectfully Submitted,

Date: March 19, 2007

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